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मानक

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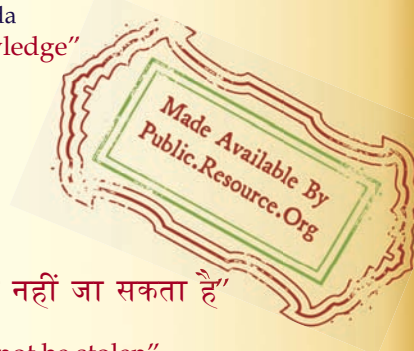
IS 12768 (1989): Pesticides - Thiobencarb, Technical [FAD
1: Pesticides and Pesticides Residue Analysis]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

**PESTICIDES — THIOBENCARB, TECHNICAL —
SPECIFICATION**

भारतीय मानक

कीटनाशक — थायोबेनकार्ब, तकनीकी — विशिष्ट

UDC 632'951 THI

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards on 30 August 1989, after the draft finalized by the Pesticides Sectional Committee (FADC 1) had been approved by the Food and Agriculture Division Council.

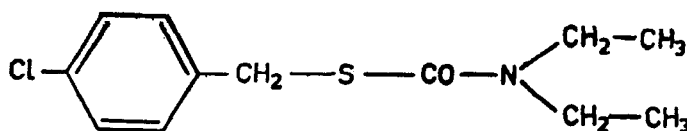
Thiobencarb, technical is used in the preparation of herbicidal formulations for agricultural crops. Thiobencarb is the accepted common name by the International Organization for Standardization (ISO) for S-4-chlorobenzyl diethyl (Thiocarbamate). The empirical and structural formulae and the molecular mass of thiobencarb are as indicated below:

Empirical Formula

Structural Formula

Molecular Mass

$C_{12}H_{16}ClNOS$



257.8

In the preparation of this standard, due consideration has been given to the provisions of the *Insecticides Act, 1968* and the Rules framed thereunder. However, this standard is subject to the restrictions imposed under these, wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (revised)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

PESTICIDES — THIOBENCARB, TECHNICAL — SPECIFICATION

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for thiobencarb, technical.

2 REFERENCES

The Indian Standards listed at Annex A are necessary adjuncts to this standard.

3 REQUIREMENTS

3.1 Description

The material shall be in the form of clear, slight yellow to amber coloured liquid, free from any extraneous impurities.

3.2 The material shall also comply with the requirements specified in Table 1.

**Table 1 Requirements for Thiobencarb,
Technical**
(Clauses 3.2 and 7.1)

Sl No.	Characteristic	Require- ment	Method of Test, Ref to	
			Annex of This Standard	Clause No. of IS 6940 : 1982
(1)	(2)	(3)	(4)	(5)
i)	Thiobencarb content, percent by mass, <i>Min</i>	93.0	B	—
ii)	Moisture content, per- cent by mass, <i>Max</i>	0.25	—	4
iii)	Material insoluble in actone, percent by mass, <i>Max</i>	0.5	—	9
iv)	Acidity (as H_2SO_4) percent by mass, <i>Max</i>	0.5	—	13.5.4

4 PACKING

The material shall be packed in mild steel drums suitably and properly lacquered from inside or

HDPE drums of 1.75 to 2.25 mm thickness or HDPE container fitted in mild steel containers. In addition the material shall comply with the general packing requirements as given in 2 of IS 8190 (Part 2) : 1988.

5 MARKING

The container shall bear legibly and indelibly the following information and any other information as is necessary under the *Insecticides Act, 1968* and Rules;

- a) Name of the material;
- b) Name of the manufacturer;
- c) Batch number;
- d) Date of manufacture;
- e) Thiobencarb content, percent (*m/m*);
- f) Net mass of contents; and
- g) The cautionary notice worded as in the *Insecticides Act, 1968* and Rules.

6 SAMPLING

Representative samples of the material shall be drawn as prescribed in IS 10946 : 1984.

7 TESTS

7.1 Tests shall be carried out by the appropriate methods referred to in col 4 and 5 of Table 1.

7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070 : 1977) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

ANNEX A (Clause 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	Title	IS No.	Title
IS 1070 : 1977	Specification for water for general laboratory use (<i>second revision</i>)	8190 (Part 2) : 1988	formulations (<i>first revision</i>)
IS 3903 : 1984	Specification for dimethoate emulsifiable concentrate (<i>second revision</i>)	IS 10946 : 1984	Requirements for packing of pesticides: Part 2 Liquid pesticides (<i>second revision</i>)
IS 6940 : 1982	Methods of test for pesticides and their		Methods of sampling of technical grade pesticides

ANNEX B

[Table 1, Item (i)]

DETERMINATION OF THIOMBENCARB CONTENT

B-1 PRINCIPLE

Thiobencarb on hydrolysis with glycolic potassium hydroxide liberates diethylamine which is swept by a stream of nitrogen and absorbed in 2 percent boric acid solution. The decomposed Thiobencarb forms potassium salts and remains in the hydrolysis Kettle, which does not interfere in the subsequent titration. The boric acid solution when titrated with standard hydrochloric acid estimates quantitatively liberated amine.

B-2 APPARATUS

An assembly of the apparatus as illustrated in Fig. 1 of IS 3903 : 1984. Minor modifications in the illustrative assembly with regard to joints may be made. However, it shall be ensured that all joints are leak-proof.

B-3 REAGENTS

B-3.1 Glycolic Potassium Hydroxide Solution, 2 N solution in diethylene glycol.

B-3.2 Boric Acid Solution, 2 percent aqueous solution containing 1 ml of 0.1 percent bromocresol green indicator solution.

B-3.3 Standard Hydrochloric Acid Solution, 0.1 N.

B-4 PROCEDURE

B-4.1 Weigh accurately a quantity of sample containing about 0.4-0.6 of thiobencarb into the reaction flask or kettle. Add accurately measured 50 ml of 2 N glycolic potassium

hydroxide solution to the kettle and assemble the apparatus as shown in the Fig. 1 of IS 3903 : 1984. Add to the receiver accurately measured 150 ml of 2 percent boric acid solution. Connect the nitrogen inlet tube and start the nitrogen flow so as to get slow and uniform bubbling in the receiver containing boric acid. Apply sufficient heat to the kettle and maintain 225°C to 250°C temperature of the reaction kettle so that the boric acid solution changes colour within 5-7 minutes. Reflux for 90 minutes. Stop heating while continuing to pass nitrogen for the next 5 minutes.

B-4.2 Disconnect the receiver first and then the nitrogen supply. Transfer the contents of the receiver into a 500-ml Erlenmeyer flask. Rinse the inside and outside of the gas delivery tube and the inside of the receiver with boric acid solution adding the washing to the Erlenmeyer flask. Titrate the contents of the Erlenmeyer flask with standard hydrochloric acid solution to the original colour of the boric acid solution.

B-5 CALCULATION

Thiobencarb content, percent by mass

$$= \frac{25.78 \times V \times N}{M}$$

where

V = volume, in ml, of standard hydrochloric acid solution used;

N = normality of standard hydrochloric acid solution; and

M = mass, in g, of sample taken for the test.

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BUREAU OF INDIAN STANDARDS

Headquarters :

Manek Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 331 01 31, 331 13 75

Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices :

	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	{ 331 01 31 331 13 75
Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Maniktola CALCUTTA 700054	36 24 99
Northern : SCO 445-446, Sector 35-C, CHANDIGARH 160036	{ 2 18 43 3 16 41
Southern : C.I.T. Campus, 4 Cross Road, MADRAS 600113	{ 41 24 42 41 25 19 41 29 16
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